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PATENT APPLICATION  
Attorney's Docket No. 1159 1006-010

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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Patentees: Steven A. Bogen, Herbert H. Loeffler and John A. Purbrick  
Application No.: 90/007,351 Group: 1743  
Filed: December 21, 2004 Examiner: Brian J. Sines  
Patent No.: 6,183,693 B1  
Confirmation No.: 1121  
For: RANDOM ACCESS SLIDE STAINER WITH INDEPENDENT SLIDE  
HEATING REGULATION

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PATENT OWNER'S STATEMENT

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Sir:

This Statement is made in response to the Order Granting Ex Parte Reexamination dated March 1, 2005. An extension of time to file the Patent Owner's Statement until Wednesday, May 4, 2005, was given verbally to the undersigned by Mr. Michael Ball.

It is respectfully submitted that the claims of patent 6,183,693 are not anticipated nor rendered obvious by the prior art.

### Related Litigation

The Request for Reexamination dated 21 December 2004 was made by counsel representing Ventana Medical Systems, Inc., Tucson, AZ. The Requestor explained on page 4 of the Request that the Reexamination request is made concurrent with a proceeding in which the patent in question, 6,183,693 to Bogen et al., is the subject of a patent infringement lawsuit brought by CytoLogix Corporation, the owner of the patent. The lawsuit was brought in the United States District Court for the District of Massachusetts, No. 01-CV-10178RWZ, and is now on appeal at the United States Court of Appeals for the Federal Circuit. The appeal has been fully briefed and oral arguments are scheduled for June 7, 10:00 AM, at the U.S. Court of Appeals for the Federal Circuit, Washington D.C. A decision is expected this summer.

The jury found that patent 6,183,693 was valid and that Ventana infringed all of the claims alleged to be infringed, including all of the independent claims. In addition, the jury found that another patent owned by CytoLogix, U.S. Patent 6,180,061 to Bogen et al., was valid and infringed. That patent is also the subject of a separate Reexamination request filed by Ventana Medical, Application No. 90/007,348.

In the litigation, Ventana Medical did not raise any prior art validity arguments against the '693 patent. However, one of the key prior art citations raised in this Reexamination request, U.S. Pat. No. 5,089,229 to Heidt, et al., was thoroughly discussed in the context of the '061 patent, which was found to be valid. Despite being aware of the prior art, Ventana Medical never argued during litigation that it bore any relevance to the '693 patent.

The Ventana appeal will likely be concluded this summer, followed by a damages phase of the action. A prompt and positive conclusion of this reexamination will support a prompt conclusion of the litigation.

### Disclosed Embodiments of the Invention

The claimed invention is directed to a microscope slide stainer with random access slide staining capability. It includes a moving platform, such as a carousel. The claimed invention relates to a feature illustrated in Fig. 17 and described at column 10, lines 8-29. Each heated area 88 supports a slide and is heated by a heating element 78. Temperature sensors 87 are associated with the slide heating locations. A number of temperature controllers 79 are located

on the carousel to receive signals from the sensors 87 and control heating element temperatures. Sets of one or more heating elements may be heated to different temperatures. The temperature controllers 79 communicate through a service loop 90 with a stationary device that may provide a user interface. The stationary device communicates data to the temperature controllers on the moving platform to regulate the electrical power to the heating element sets.

It is important to understand the context in which the invention was made. We quote from our original explanation to the U.S. Patent examiner, from the communication filed August 13, 1999.

As discussed in the background of the application, prior systems for handling microscope slides, which have required heating of the slides, have generally introduced the slides into a heated environment which heated all slides to the same temperature. Another approach to heating microscope slides on a carousel was presented in U.S. Patent 5,645,114 which is assigned to the assignee of this application. In that system, the slides were supported on the carousel on individual heated areas. That feature has been claimed in a continuation to the '114 patent, Serial No. 09/205,945 [ultimately issued as U.S. Patent 6,180,061]. That implementation permitted individual temperature control of slides, or sets of slides, to different temperatures. In an early implementation, each of those heaters was directly connected to a controller in a personal computer adjacent to the instrument.

The invention to which the original claims in this application are directed provides a solution to a problem which arises when the system of the '114 patent is designed to independently control temperatures to which a large number of microscope slides are heated. In one implementation, 48 slide heaters are independently regulated. In the prior approach, each heater would require two wires for supply of electrical current, and at least one additional wire was required for each temperature sensor. Therefore, for an implementation of 48 heaters, 144 wires would be required between the personal computer and the 48 heaters located on the rotating carousel. This large number of wires has such a large mass and stiffness that it prevents the rotary carousel from moving freely.

The solution presented by the present invention involves two levels of heat control. The instrument user specifies a desired temperature by typing that temperature into a user interface, a computer sitting on the desktop. That computer communicates to one or more controllers mounted on the moving platform. Accordingly, the user interface and host command functions on the desktop personal computer are split from the heater controller on the moving platform. The controller can communicate with the host software with fewer wires than would be required with individual control from the PC to each heater. The invention allows for the use of only a small number of wires in a connecting cable between a moving

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platform and a stationary base while still providing independent control of a large number of heaters to different temperatures.

Reasons for Allowance in Original Prosecution Still Apply

It is respectfully submitted that all claims should be found patentable for the same reasons that they were allowed in the original prosecution. The Bogen et al. patent 5,645,114 was a primary reference cited in the original prosecution. It is submitted that the Heidt et al. reference 5,089,229 is less relevant than the previously cited Bogen et al. patent 5,645,114. Further, the Tseung et al. reference 5,439,649 was previously cited and is no more relevant than the secondary references on which the examiner relied in the original prosecution, Muller et al. 5,273,905 and Potter et al. 5,819,842. The Brinker et al. patent 5,589,649 and Rocha et al. patent 5,077,460 are even less relevant than any of the previously cited references.

In the original prosecution, the claims were rejected as being unpatentable over the Bogen et al. patent 5,645,114 in view of Muller et al. and Potter et al. In an amendment filed July 5, 2000, it was acknowledged that, in the actual implementation of the system disclosed in Bogen et al. '114, "the sets of heating elements were individually controlled, but control was directly from the stationary user interface computer" (page 4, lines 14-16). It was noted that one implementation of that system was discussed at page 10 of the application (column 4, line 48 through column 5, line 5 of the '693 patent). It was further stated:

Not only has the Bogen et al. reference failed to recite that each of the heating element sets has the capability of heating to different temperatures, as acknowledged by the Examiner, Bogen et al. has failed to suggest temperature control circuitry mounted on the moving platform in order to enable a reduced number of connections between the controlling computer and the moving platform.

It was further noted that the Muller et al. and Potter et al. references related to systems in which the samples were stationary. As such, they did not address the problem of controlling heating elements on a moving platform.

As was stated in the Examiner's Statement of Reasons for Allowance:

The prior art fails to teach the presently recited combination of a platform supported temperature controller with a user interface mounted off of the platform, for independently regulating the temperature of each of a plurality of microscope slides also mounted on the platform.

That distinguishing feature cannot be found in any of the prior art cited in this Reexamination.

As will be discussed in greater detail below, Heidt et al. does not have the capability of heating slides to different temperatures. In fact, Heidt et al. has only a single heater on the carousel that heats to a single temperature. Further, the sole temperature controller of Heidt et al. is stationary. Thus, Heidt et al. is even less relevant than the previously cited Bogen et al. '114 patent.

The Tseung et al. patent was before the examiner during the original prosecution. Tseung et al. and Brinker et al., like Muller et al. and Potter et al., disclose heating of stationary samples to different temperatures. Just as there was no teaching in either of Muller et al. or Potter et al. toward a solution to a problem associated with a moving carousel, there is no teaching in Tseung et al. or Brinker et al. of a temperature controller on a carousel.

The Rocha et al. patent teaches nothing toward a microscope slide stainer system and also teaches nothing toward the claimed platform mounted temperature controller in communication with an off-platform device.

#### Detailed Discussion of References Relied upon in Request

##### The Bogen et al. '114 Patent

As discussed above, the Bogen et al. '114 patent relied upon in the original prosecution does disclose a slide stainer with heated supports for slides on a carousel. However, it does not disclose temperature control with "a temperature controller that regulates electrical power to said heating element sets, said temperature controller being mounted on the moving platform" (claim 1).

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Although Ventana knows from the trial that the system disclosed in the '114 patent did not have the control electronics mounted on the moving platform, Ventana proposed the following construction at page 19 of the Request:

Bogen '114 provides a temperature controller to regulate electrical power to the heating element sets. A microprocessor is disclosed, but not illustrated, so its placement details are assumed to be within the skill in the art. It would be obvious to locate the microprocessor inside the dispensing assembly 500 device. The area most suitable for locating the microprocessor appears to be the large interior space of the second embodiment 500 of the dispensing assembly (Fig. 1) and may therefore be located on the moving platform 504, which is the base of the interior space.

That statement is not only inconsistent with their understanding of the actual product, but with Ventana's own arguments made in the prosecution of Ventana's patent 6,296,809. There they argued:

The Bogen primary reference (U.S. Patent No. 5,645,114), as discussed above, does not teach any control electronics for the plurality of heaters, let alone the placement of the electronics either on the stationary portion or the movable portion. (Response filed May 17, 2001, page 18, top paragraph.)

Therefore, Ventana takes a diametrically opposite position in the Request as it took to the Patent Office when arguing its own '809 patent application, where the same issue was raised by the Examiner.

#### The Heidt et al. Patent

Heidt et al. does not relate to staining of microscope slides but rather to analysis of blood serum. A drop of serum is dispensed onto various chemical analyte "slides," each of which is impregnated with a reagent that causes a color to develop upon reacting with substances in serum. That color is measured by reflectometry, by shining a light beam on the underside of the chemical analyte slide. As shown in Figs. 10A and 31, the slide includes a frame 128, typically plastic, and an aperture 126 across which a film, typically of Mylar, is stretched. The film supports a reagent to which serum is applied by means of a pipet. As illustrated in Figs. 31a-c, only the edges of the frame are supported by the

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turntable 50 in order to enable the reflectometry analysis. There is no support below the sample region.

As illustrated in Figs. 1 and 3, the turntable 50 is enclosed within a cabinet enclosure. The air within that enclosure is heated by two mechanisms. As illustrated in Fig. 14, an internal base plate 48 is heated by heaters 395. In addition, as illustrated in Fig. 8A, the turntable itself is heated by heater elements 382 mounted in a heater plate 380 at the hub of the turntable. What appears to be a single element 382 in Figure 8A is described as "heater elements 382" at the top of column 26. The heater elements are apparently windings joined together to operate as a single heater:

A heater plate 380 (see FIGS. 8A and 30) which includes a recess formed in one of its top or bottom surfaces houses *a number of conductor windings or heater elements 382*, such as manufactured by Kurabe Wire and Cable Co. [column 26, lines 4-7, emphasis added]

That there is only one heating coil is underscored by the fact that the coil fits into a single recess, shown in Fig. 8A. Moreover, the heater 382 is further described by reference to heater 395, not mounted on the rotary carousel:

The strip heater is basically an elongated coil inside a silicon jacket which is disposed in a circle on the underside of the base plate. Such a device is manufactured by Kurabe Wire and Cable Co., and is similar to heater element 382. [Column 26, line 68 – column 27, line 4]

A single sensor 378 (Fig. 8A) senses the temperature of the turntable, and the signal from that sensor is applied to stationary temperature control circuitry in Fig. 67B through a brush S. The circuitry controls the temperature of the turntable through a brush H to the turntable.

Heidt et al. teaches even less than the Bogen '114 patent cited during the original prosecution. The Bogen '114 patent disclosed a microscope slide stainer with random access slide staining capability; Heidt et al. does not. The Bogen et al. '114 patent



disclosed a plurality of heating element sets for heating slides supported thereon; Heidt et al. does not.

What the Bogen et al. '114 patent did not disclose, as was emphasized in the Examiner's Reasons for Allowance, was control by means of a platform supported temperature controller in combination with a device mounted off of the platform. That feature is also not taught by Heidt et al. Rather, Heidt et al. includes the temperature controller of Figure 67B, which is mounted off of the platform. There are only three connections between that controller and the moving platform, brushes S, +, and H at the top of Fig. 67B. As described at column 52, lines 40-45, the signal from the single temperature sensor 378 on the turntable is received through the brush S. The + brush provides a positive voltage to the sensor and the heater on the platform. The brush H "provides a path to sink current from the coils of the heater plate 380." Thus, contrary to statements in the Reexamination Request, there is only a single heater mounted on the rotary carousel. There are no heating elements on the turntable for heating to different temperatures as there is only one control signal through brush H.

The Requestor has attempted to characterize the small printed circuit board 371 (Fig. 8A), which apparently provides no more than support to the heat sensing element 378 and conductors from that sensor to the noted brush S, as "at least part of the temperature controller 371 being mounted on the moving platform." A portion of the controller does not meet the claim requirement of a temperature controller mounted on a moving platform. Further, the temperature sensor cannot even be characterized as being part of the controller since the specification of the '693 patent references the sensors 87 as being distinct from the controllers 79. Also, dependent claim 5 makes it clear that the temperature sensor is distinct from the temperature controller. Still further, the Bogen et al. '114 patent had a temperature sensor on the carousel, but the examiner found that the Bogen et al. patent did not have a temperature controller on the carousel.

The District Court defined a "temperature controller" as "the switch, power amplifier, or like device that directly adjusts the flow of electric power to one or more



heating elements. The temperature controller includes a means for converting temperature data." See the attached page A31 from the District Court proceedings. Ventana has not appealed that claim construction, which is consistent with the claims themselves. The claims recite, for example, "a temperature controller that regulates electrical power to said heating element sets, said temperature controller being mounted on the moving platform." A temperature sensor does not regulate electrical power to heating elements and can not be characterized as a temperature controller. Thus, the only temperature controller of Heidt et al. is that illustrated in Figure 67, and that controller is mounted off of the turntable.

With respect to claims 3 and 8, it is further noted that Heidt et al. includes only one set of heater elements, all heated to a common temperature, and that there are three conductors to the turntable. Thus, in Heidt et al., the number of conductors is greater than the number of heating element sets.

#### The Tseung et al. patent

Tseung et al. was cited during the original patent prosecution. It does not have heaters mounted on a moving platform. Nor is there any suggestion of the feature by which the claims distinguish the Bogen et al. '114 patent, a temperature controller on a moving platform communicating with a device off of the moving platform.

#### The Brinker et al. patent

As correctly noted by the examiner at the top of page 4 in paragraph 3 and at page 6 in paragraph 6 of the Order, the Brinker et al. patent is "not art analogous or relevant to either a slide staining apparatus or an analytical chemistry apparatus." Accordingly, Brinker et al. should not be relied upon. Further, the heated solution and temperature controller are stationary.

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The Rocha et al. Patent

As correctly noted by the examiner at page 6 in paragraph 6 of the Order, Rocha et al. is utilized in preparing food, and the patent is "not art analogous or relevant to either a slide staining apparatus or an analytical chemistry apparatus." Accordingly, Rocha et al. should not be relied upon. Further, each heater in the Rocha et al. device is controlled by a preset thermostat 94 mounted on the carousel. There is no external computer providing a user interface to specify a desired temperature and to communicate data to temperature controllers.

Conclusion

The patent 6,183,693 that is the subject of this Reexamination was allowed in view of the failure of the Bogen et al. '114 patent to teach the combination of a platform supported temperature controller communicating with a device mounted off of the platform. None of the references presented in this Reexamination teach that feature. Accordingly, it is respectfully requested that the examiner issue a favorable finding of patentability of all claims in the patent.

Respectfully submitted,

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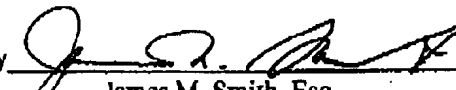
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CERTIFICATE OF SERVICE

The undersigned certifies that a copy of the foregoing Patent Owner's Statement was served on counsel listed below by First Class Mail, postage prepaid, in an envelope addressed as follows:

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on this 4th day of May 2005.

By   
James M. Smith, Esq.

**The '693 Patent**

**Random Access:** the capability of an instrument to perform any of a list of procedures to any of a plurality of biologic samples mounted on microscope slides.

**Temperature Controller:** the switch, power amplifier or like device that directly adjusts the flow of electric power to one or more heating elements. The temperature controller includes a means for converting temperature data.

**User Interface:** the device(s) through which the user (operator of the instrument) inputs information into the instrument.

**In Communication With:** ongoing, back and forth communication.

**Communicating Data to Regulate the Electrical Power:** communicating data from the user interface for the purpose of regulating and adjusting electrical power to the heating elements.

**Temperature Controller Electronic Circuit:** electronic components, wiring, and printed circuit board which comprise the power amplifying device and decoder.

**Data Communication Link:** connection through which data is transmitted.